

## New and rare nocturnal Lepidoptera species for Serbia from Preševo District and Pčinja River Valley - hot spots for biodiversity

(Insecta: Lepidoptera)

by

STOYAN BESHKOV & ANA NAHIRNIĆ

received 26.IV.2016

**Abstract:** Data for 54 species, from which 5 genera and 19 nocturnal Macrolepidoptera species, are new for Serbia, collected in 2015 in southern-southeastern Serbia, are reported here. Where necessary, ♂ or ♀ genitalia of the species are also illustrated. In that biodiversity hot spots, 23 species new for Serbia were found in a short exploring time, less than a year. Some other species, previously known in Serbia from single localities, are also reported here. All species new for the fauna of Serbia are illustrated, some also together with their genitalia.

**Introduction:** The region of Southern Serbia near the border of Republic of Macedonia on an area of Preševo town has already been studied by botanists who pointed out influence of Mediterranean region by finding some thermophilous plants and plant associations with domination of such species (RANDELOVIĆ & RUŽIĆ, 1983, 1986). However, this region piqued the interest of biologists in just several last years. ZLATKOVIĆ et al. (2011) have found several new plants for Serbia. POPOVIĆ & MILENKOVIĆ (2012) reported one new butterfly species for Serbia - *Antocharis gruneri* HERRICH-SCHÄFFER, [1851] from Preševo, near Miratovac Village. RALEV & al. (2013) reported the tortoise species *Testudo graeca ibera* (PALLAS, 1814) from Preševo Valley, near Miratovac Village and from Pčinja River Valley. CRNOBRNJA-ISAILOVIĆ & ALEKSIĆ (1999) and RISTIĆ et al. (2006) reported two new thermophilous reptile species for Serbia on Mt. Starac, Pčinja River Valley: *Platyceps najadum* (EICHWALD, 1831) and *Elaphe quadrolineata* (LACÉPÈDE, 1789) respectively. POPOVIĆ et al. (2014) reported another new species for Serbia with southern distribution - *Pyrgus cinarae* (RAMBUR, 1839). PAVIČEVIĆ et al. (2014) reported several new Orthoptera and Mantodea species as new for Serbia from Miratovac and Pčinja River Valley. Finding of all these species suggested possible occurrence of interesting nocturnal Lepidoptera species as well in this areas, which remain unexplored and no night collecting was conducted there. This area can be considered as a part of the geographical large area Macedonia, politically split between several countries and we expected to find there almost the same species composition typical for Macedonia.

Not familiar with this region, at the end of April 2015 we had intention to collect at night near Miratovac, but it was not possible because of the border area and the complicate situation there. We looked for other options to collect at night in the area and seen a road going on the hill. On this road, which started from Trnava Village along the river, above disused quarry we saw the pink flowers of the food plant of *A. gruneri* H.-S. - *Aethionema saxatile* (L.) R. Br. About 1 km from there, near the road and the stony grassland on the slopes (fig. 1), *A. gruneri* H.-S. was not rare. At that place we collected at the night and continued our collecting again at the end of August. The next place for collecting is Mt. Starac, above Pčinja River Valley near to the border of the protected area - Dolina reke Pčinje. There we collected also one night at the end of April, one night in rain in June and one night every month, from August to November. At the beginning of July A. NAHIRNIĆ collected there at day time. The third collecting locality in this area is the vicinity of the Church of Holly Mother at rocky area Vražji Kamen, Pčinja River Valley near Trgovište Village. There we collected once in September and once in November. A more intensive research was conducted in autumn, as we expected in September to find *Eugnorisma pontica* (STAUDINGER, 1892) and *Euxoa glabella balcanica* FIBIGER, 1997. They were not found, but other southern and submediterranean species were found, which are presented below. Our research there will continue in spring - early summer of 2016, as expected species are *Acronicta orientalis* MANN, 1862, *Omphalophana anatolica* (LEDERER, 1857), *Teinoptera lunaki* (BOURSIN, 1940), *Amephana dalmatica* (REBEL, 1919), *Hadena vulcanica urumovi* (DRENOWSKI, 1931), *Hadena syriaca* (OSTHELDER, 1933) or even *Rethera komarovi drilon* REBEL & ZERNY, 1931, etc.

During our trips material was collected at 3 portable light traps and lamps plugged in a generator. Light traps were pot with funnel with one 8W actinic/or 368 nm and one 8W "blacklight" tubes powered by 12V 9 Ah batteries. A 220V generator was used for powering Finish type "tent-like" trap with 160W MVL at the top and pot with funnel with 20 W 368 nm black light below. Another pot with funnel with 20W 368 nm lamp was powered by the generator in distance of 60-70 m from the "tent-like" trap. The distance between the traps was of about several hundred meters. All traps ran all over the nights. Material was collected by both authors together, so the collectors' names do not appear in other parts in the text. Part of genitalia preparations, where necessary were photographed in alcohol before mounting on a glass in Euparal. For some species, where diagnostic features are easy to seen in the field with magnifying glass without maceration and preparation of microscope slides, genitalia are only brushes with fine brush and photographed. Microscopic objects are photographed with Zeiss stereo microscope Stemi 2000-C with AxioCam ERc 5s and software Axio Vision 4.8.2 (06.2010). Insects are photographed with Sony DSC-HX400V digital camera. Trips were self-financed by the authors.

Based on ZLATKOVIĆ (2011) and with use of LAKUŠIĆ (2005) and LAKUŠIĆ et al. (2005) we listed habitat types (EUNIS classification). Some of the habitat types present in Serbia do not have their equivalents in European EUNIS classification, therefore, habitat types according to Serbian EUNIS are also given in brackets in Serbian language. In this way a level of precision is preserved. Georeferenced collecting localities with the habitat types are presented as follows:

Trnava - S. Serbia, Vranje Region, Preševo district, above Trnava Village, N42°16'33"; E021°36'57", 696 m, habitat see fig. 1. E1.2B Serpentine steppes (E1.2B2 Serpentske stepe na plitkom kamenitom tlu) in forest belt of *Quercus pubescens* WILD. and *Q. petraea* (MATT.) LIEBL. and thickets as result of degradation of this forest.

Starac Mt. - S. Serbia, Vranje Region, Mt. Starac, above Pčinja River Valley, "Turski Grob" N42°20'39"; E021°53'02", 799 m, habitat see fig. 2. ZLATKOVIĆ (2011) visited neighbouring locality Budovija which has the same vegetation like Turski Grob. We were able to confirm this by visiting both localities several times over the year.

E1.7 Non-Mediterranean dry acid and neutral closed grassland (E1.761 Suve subkontinentalne silikatne stepske travne formacije sa dominacijom *Chrysopogon gryllus*); E1.91 Dwarf annual siliceous grassland (E1.91 Patuljaste jednogodišnje travne formacije na silikatu); E1.92 Perennial open siliceous grassland (E1.921 Suve subkontinentalne otvorene silikatne stepske travne formacije, and E1.923 Suve submediteranske otvorene silikatne formacije sa dominacijom detelina); F3 Temperate and mediterraneo-montane scrub habitats (F3.33 Balkanske subkontinentalne večnozelenе šikare crvene kleke *Juniperus oxycedrus*).

Vražji Kamen - S. Serbia, Vranje Region, Pčinja River Valley, Vražji Kamen near Trgovište Village, N42°23'06"; E022°03'06", 663 m, habitat see fig. 3.

E1.111 Sempervivum or Jovibarba communities on rock debris (E1.112 Zajednice *Sedum stefco* na krhotinama stenja); E1.92 Perennial open siliceous grassland (E1.921 Suve subkontinentalne otvorene silikatne stepske travne formacije and E1.922 Suve submediteranske otvorene silikatne formacije sa dominacijom jastučastih netravnih busenova); G1.A46 South-eastern European ravine forests (G1.A4613 Reliktne polidominantne šume međe leske *Corylus colurna* sa hrastovima *Quercus* spp.); H3.15 Helleno-Carpatho-Balkan Silene siliceous cliffs (H3.152 Mezijsko-severno skardopindski silikatni klifovi).

Altogether 19 species and 5 genera were found for the first time in Serbia. Most of them belong to the family of Noctuidae, only 2 to Geometridae, 1 to Drepanidae, and 1 to Erebidae. These and other 35 rare species have been collected in just one year (2015) but not during the whole season. As a result of our trips in this area, which continued at the beginning of 2016, two new genera and four other species are published as new for Serbia in separate articles. They are: *Eochorica balcanica* (REBEL, 1919) (NAHIRNIĆ & BESHKOV, in press), *Desertobia ankeraria* (STAUDINGER, 1861) (NAHIRNIĆ & BESHKOV, in press), *Agrochola luteogrisea* (WARREN, 1911) and *Dryobotodes servadeii* PARENZAN, 1982 (BESHKOV, in press). Moreover, majority of Microlepidoptera which were also collected are not identified yet.

Data presented in this article and our unpublished results show exceptional richness of the Lepidoptera fauna in this region of Serbia which deserves to be considered as a hot spot of biodiversity. The influence of submediterranean climate through Vardar River Valley is of the most important reason for occurrence of many thermophilous species of Lepidoptera in this hilly lowland area. In the Central Balkan Peninsula such influence is also evident along Drim and Struma River Valleys.

Distributional patterns of the new species extend their range in the Central part of the Balkan Peninsula. Most of them are known from Mediterranean coast of Croatia from West through Republic of Macedonia and Greece to S Bulgaria and Bulgarian Black Sea Coast. Such a distribution pattern on the Balkan Peninsula we call here "Teapot pattern" - with spout and handle along Adriatic and Black Sea coasts and opening in Central Balkans, particularly in Southern Serbia where we conduct our research. As a result of this research we added "a lid of the teapot" for some species as *Eumannia oppositaria* (MANN, 1864), *Praestilbia armeniaca* STAUDINGER, 1892, *Polymixis serpentina* (TREITSCHKE, 1825), *Noctua tirrenica* BIEBINGER, SPEIDEL & HANIGK, 1983. Several species reach their Northwestern distribution of their range, or on the Balkans. They are *Cilix asiatica* O. BANG-HAAS, 1907, *Eupithecia quercetia* PROUT, 1938, *Bryophila seladonia burgeffi* (DRAUDT, 1931), *Olivenebula subsericata* (HERRICH-SCHÄFFER, 1861), *Agrochola thurneri* BOURSIN, 1953, *Hadena wehrlii frequens* HACKER, 1996, and *Xestia cohaesa* (HERRICH-SCHÄFFER, [1849]). Species with significant range extension to the north are *Tiliacea cypreago* (HAMPSON, 1906) and *Agrochola gratiosa* (STAUDINGER, 1882). One species - *Evisa schawerdai* REISSER, 1930 extends its range to northeast. *Gripesia wegneri* KOBES & FIBIGER, 2003 extends its range to the southwest. Its range however (and perhaps the taxonomical status) is not clarified enough yet.

#### List with selected species established in Preševo district and Pčinja River Valley

##### Drepanidae

***Cilix asiatica*** O. BANG-HAAS, 1907: Trnava, 27.VIII.2015, 3 ♂♂ (fig. 4) and 2 ♀♀ (fig. 5). New species for Serbia. It can be very easily split from *Cilix glaucata* (SCOPOLI, 1763) by appearance and ♂ and ♀ genitalia. Most easy to see specific difference is lead-dark submarginal spots on the forewings. In *C. asiatica* O. B.-H. they are 4, while in *C. glaucata* (SCOP.) they are 6 or 7 (fig. 6). Another diagnostic feature is the coloration from the medial part of the inner margin

which in *C. glaucata* (SCOP.) continues to the discal area and beyond, while in *C. asiatica* O. B.-H. it ends before the vein Cu2. Perhaps why *C. asiatica* O. B.-H. was reported so late in Europe is that it was overlooked. In fact, it is not rare in Bulgaria and in the Republic of Macedonia.

### Lasiocampidae

*Poecilocampa alpina* (FREY & WULLSCHLEGEL, 1874): Starac, 11.XI.2015, 1 ♂. According to JAKŠIĆ & RISTIĆ (1999), *Poecilocampa canensis alpina* Daniel & Wolfsberger, 1955 has already been registered in Serbia [Eastern Serbia, Timočka Krajina] in ZEČEVIĆ & RADOVANOVIĆ (1974) and in ZEČEVIĆ (1980), but wrongly determined as *P. populi* (LINNAEUS, 1758)]. However, from the monochrome picture in ZEČEVIĆ (1980) it is clear, that it is a ♀ of *P. populi* (L.) indeed! Later it has been reported in Novo Brdo in Kosovo with flight period to the end of December (JAKŠIĆ & RISTIĆ, 1999) and again from Timočka Krajina (ZEČEVIĆ, 2002). It is known also from Durmitor in Montenegro (VASIĆ et al., 1990). Taking into account previous reports and documented missidentifications, we are not sure which reposts in literature are really correct.

*Eriogaster catax* (LINNAEUS, 1758): Trnava, 13.X.2015, 2 ♂♂. Species from Annex II of EC 92/43 Habitat Directive: - “animal and plant species of common interest whose conservation requires the designation of special areas of conservation”.

### Saturniidae

*Perisomena caecigena* (KUPIDO, 1825): Trnava, 18.IX.2015, 6 ♂♂ and 13.X.2015, 3 ♂♂ and 1 ♀.

### Geometridae

*Lycia graecaria* (STAUDINGER, 1861) Starac, 24.IV.2015, 2 ♂♂.

*Erannis declinans* (STAUDINGER, 1879): Vražji Kamen, 12.XI.2015, 1 ♂. Second report for this species in Serbia, the first one is from the district of Bela Palanka (BESHKOV, 2015c). In the collecting locality *Paliurus spina-christi* MILL., which is reported as a possible food plant is not present. Obviously this species uses another food plant, although without any doubt *Paliurus spina-christi* MILL. is one of the important food plants.

*Nychiodes dalmatina* WAGNER, 1909: Starac, 26.VIII.2015, 1 ♂; Trnava, 27.VIII.2015, 2 ♂♂. In FAZEKAS (1997: fig. 48) there is a dot for *N. dalmatina* WAGNER in E. Serbia and in Kosovo, but from the text (p. 27) is clear, that in Serbia this species is known only from Brus (Rasina district), which is in Central Serbia. This seems to be the first report for *N. dalmatina* WAGNER from Serbia. It is known also from E. Serbia, Pirot Region, Above Kamenolom Kitka, below Crni Vrh, 870 m (BESHKOV, 2015b). According to BESHKOV (2015b) in some articles for Serbia (TOMIĆ et al, 2002; ZEČEVIĆ, 1996) it is probably reported as *Nychiodes obscurata* (VILLERS, 1789).

*Eumannia oppositaria* (MANN, 1864): Starac, 26.VIII.2015, 1 ♂, Gen. prep. 2./03.II.2016, S. BESHKOV; Trnava, 27.VIII.2015, 1 ♂ (fig. 7), Gen. prep. 1./05.II.2016, S. BESHKOV (fig. 8), ♂ genitalia with everted vesica in euparal, Barcode No 5, SB 2016. Both specimens are in bad condition, so the wing pattern is not useful enough for correct identification. From Serbia *Tephronia sepiaria* (HUFNAGEL, 1767) is reported, but although missidentification is possible, it can be easily split from *E. oppositaria* (MANN) by hind legs spurs. In *E. oppositaria* (MANN) there are four (fig. 9), whether in *Tephronia* spp. there are two spurs. Because in the literature there is some confusion about *Tephronia*/*Eumannia* genitalia, leg and genitalia pictures were sent to HAUSMANN, who answered “in theory it should be *oppositaria* but there is much confusion between the species with 4 hindspurs in ♂, *oppositaria*, *lepraria* and possibly a third species. Male genitalia are somewhat variable and not always reliable. Female genitalia are better”. Leg of one of the specimens was sent in request to HAUSMANN for Barcoding and it turned out that it really belong to *E. oppositaria* (MANN) (HAUSMANN, pers. com. to BESHKOV, 12.IV.2016). A new genus and a new species for Serbia.

*Alelucis distinctaria* (HERRICH-SCHÄFFER, 1839): Trnava, 25.IV.2015, 1 ♂ (fig. 10).

*Dyscia innocentaria* (CHRISTOPH, 1885): Starac, 19.IX.2015, 1 ♂; Vražji Kamen, 21.IX.2015, 2 ♂♂. In Serbia only known from Jelašnicka Klisura, Niš Region in Eastern Serbia (BESHKOV, 2015a).

*Eupithecia ericeata* (RAMBUR, 1833) Starac, 11.XI.2015, 2 ♀♀, genitalia checked, Gen. prep. 5./14.IV.2015, S. BESHKOV (fig. 11). In Serbia *E. ericeata* (RAMBUR) is known only from the northern part of the country - Mt. Fruška Gora (STOJANOVIĆ, ČURČIĆ & BRAJKOVIĆ, 2010).

*Eupithecia quercetica* PROUT, 1938 (= *buxata* PINKER, 1958) Trnava, 25.IV.2015, 1 ♂, Gen. prep. 1./03.II.2016, S. BESHKOV, ♂ genitalia (fig. 12a) with 8<sup>th</sup> sternit (fig. 12b) on glass: in Euparal. New species for Serbia.

### Notodontidae

*Ptilophora plumigera* ([DENIS & SCHIFFERMÜLLER], 1775): Starac, 11.XI.2015, 2 ♂♂.

### Erebidae

*Watsonarcta deserta* (BARTEL, 1902): Starac, 20.VI.2015, 1 ♂.



*Rhyparia purpurata* (LINNAEUS, 1758): Starac, 20.VI.2015, 1 ♂.

*Chelis maculosa* ([DENIS & SCHIFFERMÜLLER], 1775): Starac, 20.VI.2015, 1 ♂.

*Euplagia quadripunctaria* (PODA, 1761): Trnava, 28.VIII.2015, at day time. Priority species from Annex II of EC 92/43 Habitat Directive: - “animal and plant species of common interest whose conservation requires the designation of special areas of conservation”.

*Calymma communimacula* ([DENIS & SCHIFFERMÜLLER], 1775): Starac, 19.IX.2015, 1 ♂.

*Catocala coniuncta* (ESPER, 1787) (= *conjuncta* auct.): Trnava, 18.IX.2015, 1 ♂ in bad condition, but enough distinctive for species identification by wing pattern (fig. 13). New species for Serbia.

#### Noctuidae

*Calocucullia celsiae* (HERRICH-SCHÄFFER, 1850): Trnava, 25. IV.2015, 1 ♀.

*Praestilbia armeniaca* STAUDINGER, 1892: Trnava, 27.VIII.2015, 1 ♂; Trnava, 18.IX.2015, 8 ♂♂; Starac, 19.IX.2015, 24 ♂♂, 5 ♀♀ (fig. 14); Vražji Kamen, 21.IX.2015, 1 ♂ (fig. 15). New genus and a new species for Serbia.

*Amphipyra tetra* (FABRICIUS, 1787): Starac, 19.IX.2015, 1 ♀.

*Amphipyra micans* LEDERER, 1857: Trnava, 27.VIII.2015, 1 ♂.

*Asteroscopus syriaca decipulae* (KOVACS, 1966): Starac, 11.XI.2015, 4 ♂♂ (fig. 16). New species for Serbia. This species was more expected in Trnava, but was not found there, as well as in Vražji Kamen, although we collected there at the same time. Without any doubt it is a very local species in Serbia, but one of the reason to be found so late in Serbia is its late flight period in November.

*Cryphia ochsi* (BOURSIN, 1940): Starac, 19.IX.2015, 1 ♂, genitalia checked (brushed). According to STOJANOVIĆ & ČURČIĆ (2011) and BESHKOV (2015b) it is known only from the Central-Western and Eastern parts of the country.

*Bryophila seladona burgeffi* (DRAUDT, 1931): Trnava, 27.VIII.2015, 2 ♂♂, 2 ♀♀ (fig. 17). New species for Serbia.

*Bryophila rectilinea* (WARREN, 1909): Trnava, 27.VIII.2015, 1 ♂, wingspan 19 mm (fig. 18), Gen. prep. 2./11.IV.2016, S. BESHKOV (fig. 19) and 1 ♀, wingspan 22 mm (fig. 20), Gen. prep. 2./11.IV.2016, S. BESHKOV (fig. 21). Second locality in Serbia, previously known from E. Serbia: Mt. Stara Planina, Baranica, 340 m (UTM code FP 02) (STOJANOVIĆ, ČURČIĆ, STANISAVLJEVIĆ & ORLOVIĆ, 2014).

*Bryophila tephrocharis* BOURSIN, 1953: Starac, 26.VIII.2015, 1 ♀, wingspan 25 mm (fig. 22), Gen. prep. 1./08.IV.2016, S. BESHKOV, ♀ genitalia on glass in euparal (fig. 23). New species for Serbia.

*Nyctobrya amasina* (DRAUDT, 1931): Starac, 26.VIII.2015, 2 ♂♂, 1 ♀.

*Olivenebula subsericata* (HERRICH-SCHÄFFER, 1861): Starac, 26.VIII.2015, 1 ♂, 1 ♀ (fig. 24); Trnava, 27.VIII.2015, 1 ♂ (fig. 25). New genus and a new species for Serbia.

*Luperina rubella* (DUPONCHEL, 1835): Starac, 26.VIII.2015, 7 ♂♂; Trnava, 27.VIII.2015, 1 ♂; Vražji Kamen, 21.IX.2015, 1 ♂.

*Episema tersa* ([DENIS & SCHIFFERMÜLLER], 1775): Trnava, 18.IX.2015, 4 ♂♂; Starac, 19.IX.2015, 3 ♂♂; Vražji Kamen, 21.IX.2015, 4 ♂♂.

*Episema korsakovi* (CHRISTOPH, 1885): Trnava, 18.IX.2015, 5 ♂♂ (fig. 26); Ibid, 13.X.2015, 2 ♂♂. In Serbia *E. korsakovi* (CHRISTOPH) is known only from E. Serbia: Mt. Stara Planina, Široke Luke, 960 m (UTM code FN48) (STOJANOVIĆ, ČURČIĆ, STANISAVLJEVIĆ & ORLOVIĆ, 2014).

*Ulochlaena hirta* (HÜBNER, [1813]): Starac, 11.XI.2015, 2 ♂♂ (fig. 27); Vražji Kamen, 12.XI.2015, 1 ♂. New genus and a new species for Serbia.

*Tiliacea sulphurago* ([DENIS & SCHIFFERMÜLLER], 1775): Trnava, 13.X.2015, 1 ♂, 1 ♀. Syntopic and synchronic to *Tiliacea cypreago* (HAMPSON, 1906).

*Tiliacea cypreago* (HAMPSON, 1906): Trnava, 13.X.2015, 2 ♂♂ (fig. 28). In *T. cypreago* ([D. & S.]) ♂ antennae are more pectinate than in *T. sulphurago* (HAMPSON) and the forewings are with reddish or rusty suffusion and without marginal spots. New species for Serbia.

*Agrochola thurneri* BOURSIN, 1953: Starac, 11.XI.2015, 1 ♂ (fig. 29), Gen. prep. 3./06.II.2016, S. BESHKOV, ♂ genitalia with everted vesical on glass in euparal (fig. 30). New species for Serbia. *Agrochola thurneri* BOURSIN, is in the Balkan an endemic species, previously known from Greece, Republic of Macedonia and Bulgaria.

*Agrochola kindermannii* (FISCHER v. RÖSLERSTAMM, 1837) (= *wolfschlaegeri* BOURSIN, 1953; = *consueta* auct.): Vražji Kamen, 12.XI.2015, 5 ♀♀ (fig. 31), Gen. prep. 1./06.II.2016, S. BESHKOV. ♀ genitalia (fig. 32) correspond to these of *A. wolf-*



*schlaegeri* BOURSIN, 1953 illustrated in RONKAY, YELA & HREBLAY (2001). *Agrochola consueta* (HERRICH-SCHÄFFER, 1852) is a distinct species, not presented in Bulgaria, Macedonia and Serbia. It is illustrated including ♂ and ♀ genitalia by RONKAY, YELA & HREBLAY (2001) under the name *Agrochola kindermannii*. For Serbia *A. kindermannii* (FISCHER v. RÖSLERSTAMM) is reported as new for the country from Iron Gate under the name *Agrochola wolfschlaegeri* BOURSIN, 1953 by STOJANOVIĆ & ČURČIĆ (2011) and from Brnjica, both in Djerdap National Park, also in Eastern Serbia by STOJANOVIĆ, ČURČIĆ & NESTORVIĆ (2011) under the same name. In STOJANOVIĆ, ČURČIĆ, ČURČIĆ & MAKAROV (2013) this species is present as *A. kindermannii* (FISCHER v. RÖSLERSTAMM) with IUCN category Critically endangered (CR)B2 ac(iv).

*Agrochola gratiosa* (STAUDINGER, 1882): Starac, 19.IX.2015, 2 ♂♂, genitalia checked (fig. 33), 1 ♀ (fig. 34); Vražji Kamen, 21.IX.2015, 3 ♂♂ (fig. 35). New species for Serbia. The ♂ genitalia (clasper mechanism) of *A. gratiosa* (STGR.) is Conistra-like type and can be easily examined for correct identification when brushed under magnification (fig. 33). More pointed forewings and blackish sub terminal line of spots are also diagnostic for the specific identification.

*Xylena lunifera* (WARREN, 1910): Trnava, 13.X.2015, 4 ♂♂; Trnava, 10.XI.2015, 3 ♂♂, 1 ♀; Starac, 11.XI.2015, 3 ♂♂. According to STOJANOVIĆ & ČURČIĆ (2011) and BESHKOV (2015a) it is known only from Eastern part of the country.

*Evisa schawerdai* REISSER, 1930: Starac, 19.IX.2015, 1 ♀ (fig. 36). New genus and a new species for Serbia.

*Gripesia wegneri* KOBES & FIBIGER, 2003: Trnava, 13.X.2015, 5 ♂♂ (fig. 37), genitalia with everted vesical checked, Gen. prep. 3./03.II.2016, S. BESHKOV (fig. 38), 5 ♀♀; Trnava, 10.XI.2015, 1 ♂; Starac, 11.XI.2015, 3 ♀♀ (fig. 39); Vražji Kamen, 12.XI.2015, 2 ♂♂. New species for Serbia. For Serbia *G. aprilina* (LINNAEUS, 1758) is reported, but it seems that in Southern Serbia only *G. wegneri* KOBES & FIBIGER occurs. *Gripesia aprilina* (L.) is present perhaps in Northern and Central Serbia. Further investigation on this species complex is recommended in Serbia and on the Balkans at all.

*Dryobotodes carbonis* (WAGNER, 1931): Trnava, 18.IX.2015, 1 ♂; Trnava, 13.X.2015, 3 ♂♂ (fig. 40) and 1 ♀; Trnava, 10.XI.2015, 1 ♀. According to STOJANOVIĆ & ČURČIĆ (2011) it is known only from Central-Western and Northern parts of the country.

*Antityphe chi* (LINNAEUS, 1758): Vražji Kamen, 21.IX.2015, 1 ♂.

*Ammoconia senex* (GEYER, [1828]): Starac, 11.XI.2015, 1 ♂. According to STOJANOVIĆ & ČURČIĆ (2011) it is known only from Central-Western part of the country.

*Dasypolia templi vecchiontium* RONKAY & VARGA, 1985: Trnava, 10.XI.2015, 6 ♂♂, 2 ♀♀; Starac, 11.XI.2015, 1 ♀; Vražji Kamen, 12.XI.2015, 2 ♂♂. According to VASIĆ (2002), STOJANOVIĆ & ČURČIĆ (2011) and BESHKOV (2015a, 2015c), in Serbia, the species was known only from the eastern parts of the country.

*Polymixis serpentina* (TREITSCHKE, 1825): Starac, 19.IX.2015, 2 ♂♂; Vražji Kamen, 21.IX.2015, 3 ♂♂ (fig. 41) and 1 ♀. New species for Serbia.

*Egira anatolica* (HERING, 1933): Starac, 24.IV.2015, 2 ♂♂ (fig. 42); Trnava, 25.IV.2015, 1 ♂, Gen. prep. 1./18.II.2015, S. BESHKOV, ♂ genitalia (Fig. 43) with everted vesica (figs 44-45) on glass in euparal. In Serbia this species has only one locality - Jelašnička Klisura, Niš Region (Beshkov, 2015a). More than 35 ♂♂ *Egira* specimens from *E. conspicillaris/tibori* group were dissected and ♂ genitalia, including everted vesica were examined, but we did not find *Egira tibori* HREBLAY, 1994 among the material from E. and S. Serbia, although this species must be present there.

*Hadena wehrlii frequens* HACKER, 1996: Starac Mt. main road to Prohor Pčinjski Monastery, N42°20'17", E021°53'35", 657 m, 2.VII.2015, A. NAHIRNIĆ leg. It was resting at day hidden on steel safety barrier at road shoulder, 1 ♀ (fig. 46). The ♀ genitalia checked, Gen. prep. 1./02.II.2015, S. BESHKOV, on glass in euparal (fig. 47). Length of apophysis posterior (with ovipositor lobes) 8,5 mm. New species for Serbia.

*Mythimna alopecuri* (BOISDUVAL, 1840): Trnava, 27.VIII.2015, 1 ♂, genitalia checked (brushed). According to STOJANOVIĆ & ČURČIĆ (2011) in Serbia it is known only from the Eastern parts of the country.

*Euxoa hastifera* (DONZEL, 1847): Trnava, 18.IX.2015, 1 ♂; Vražji Kamen, 21.IX.2015, 1 ♂. According to STOJANOVIĆ & ČURČIĆ (2011) in Serbia *E. hastifera* (DONZE) is known only from Northern and Eastern parts of the country.

*Noctua tirrenica* BIEBINGER, SPEIDEL & HANIGK, 1983: Trnava, 18.IX.2015, 2 ♂♂ and 1 ♀, genitalia checked; Starac, 19.IX.2015, 3 ♂♂ and 1 ♀, genitalia checked; Vražji Kamen, 21.IX.2015, 2 ♂♂ and 3 ♀♀ (fig. 48). New species for Serbia. It can be split easily from its close related species *N. fimbriata* (SCHREBER, 1759) by external genital features, brushed under magnification. In the ♀ genitalia *N. fimbriata* (SCHREBER) has very long finger like sclerotized postvaginal process (fig. 49), whether in *N. tirrenica* BIEBINGER, SPEIDEL & HANIGK (fig. 50) postvaginal process is very short and almost flat, spoon like. This diagnostic feature can even be checked by touching by finger on the not brushed abdominal end. In the ♂ genitalia of *N. tirrenica* BIEBINGER, SPEIDEL & HANIGK (fig. 51) process of the uncus is shorter and in this basis there are no tips and subsequent concavities. In *N. fimbriata* (SCHREBER) process of the uncus is longer and in the basis of the thin process of the uncus there are clear bilateral tips and subsequent concavities (fig. 52).

*Xestia cohaesa* (HERRICH-SCHÄFFER, [1849]): Starac, 26.VIII.2015, 1 ♂ (fig. 53); Trnava, 18.IX.2015, 1 ♂; Starac, 19.IX.2015, 3 ♂♂ and 15 ♀♀ (fig. 54). New species for Serbia. *Xestia cohaesa* (H.-S.) can be split from its closely related species *X. xanthographa* ([DENIS & SCHIFFERMÜLLER], 1775) by wings colour and pattern. In typical *X. cohaesa* (H.-S.) reniform and orbicular stigmata are without black coloration inside, ground colour of the forewings and especially abdominal end are with rusty suffusion, forewings look more granulate, hind wings are more pale and bright.

**Acknowledgements:** We are thankful to Dr. AXEL HAUSMANN (ZSM), Germany for his comments about four-hind spurs ♂♂ of *Eumannia* spp.

## References

- BESHKOV, S. (2015a): Some new for Serbia and rare Lepidoptera species collected at light in Eastern Serbia. - Ent. Rec. J. Var. **127**: 127-134, London.
- BESHKOV, S. (2015b): Eight new and some rare for Serbia nocturnal Lepidoptera species collected at light. - Ent. Rec. J. Var. **127**: 212-227, London.
- BESHKOV, S. (2015c): A significant range extension of *Erannis declinans* (STAUDINGER, 1879) in Europe (Lep.: Geometridae). - Ent. Rec. J. Var. **127**: 271-277, London.
- CRNOBRNJA-ISAILOVIĆ, J. & I. ALEKSIĆ (1999): First record of *Coluber najadum* EICHWALD (1831) in Serbia. - Arch. Biol. Sciences **51**: 47-48, Belgrade.
- FAZEKAS, I. (1997): Revision des *Nychiodes obscuraria* VILLERS 1787 Artenkomplexes, mit ergänzenden Angaben zu *Nychiodes dalmatina* F. WAGNER 1909 (Lepidoptera: Geometridae). - Entomologica Romanica **2**: 13-44, Bukarest.
- JAKŠIĆ, P. & G. RISTIĆ (1999): New and rare species of Lepidoptera in Yugoslavia. - Acta ent. serbica **4** (1/2): 63-74, Belgrade.
- LAKUŠIĆ, D. (2005): Veze između međunarodnih klasifikacija staništa i klasifikacija staništa Srbije. - In: D. LAKUŠIĆ (ed.), Staništa Srbije, Rezultati projekta "Harmonizacija nacionalne nomenklature u klasifikaciji staništa sa standardima međunarodne zajednice". - Institut za Botaniku i Botanička Bašta "Jevremovac", Biološki fakultet, Univerzitet u Beogradu, Ministarstvo za nauku i zaštitu životne sredine Republike Srbije. <http://habitat.bio.bg.ac.rs/> [accessed 31 March 2016].
- LAKUŠIĆ, D., BLAŽENČIĆ, J., RANĐELOVIĆ, V., BUTORAC, B., VUKOJIČIĆ, S., ZLATKOVIĆ, B., JOVANOVIĆ, S., ŠINŽAR-SEKULIĆ, J., ŽUKOVEC, D., ČALIĆ, I. & D. PAVIČEVIĆ (2005): Staništa Srbije - Priručnik sa opisima i osnovnim podacima. Pp. 1-684. - In: D. LAKUŠIĆ (ed.), Staništa Srbije, Rezultati projekta "Harmonizacija nacionalne nomenklature u klasifikaciji staništa sa standardima međunarodne zajednice". - Institut za Botaniku i Botanička Bašta "Jevremovac", Biološki fakultet, Univerzitet u Beogradu, Ministarstvo za nauku i zaštitu životne sredine Republike Srbije. <http://habitat.bio.bg.ac.rs/> [accessed 31 March 2016].
- PAVIČEVIĆ, D., IVKOVIĆ, S. & L. HORVAT (2014): New and rare species of orthopteroid insects in the fauna of Serbia. In: Pavičević, D. & M. Perreau (eds.), Fauna Balkana **3**: 103-122. - University of Novi Sad, Faculty of Science, Department of Biology and Ecology, Novi Sad.
- POPOVIĆ, M. & M. MILENKOVIĆ (2012): First record of *Anthocharis gruneri* for Serbia (Lepidoptera: Pieridae). - Phegea **40** (1b): 37-38, Antwerpen.
- POPOVIĆ, M., RADEVSKI, Đ., MILJEVIĆ, M. & M. ĐURIĆ (2014): First record of *Pyrgus cinarae* (Lepidoptera: Hesperidae) in Serbia. - Acta entomologica serbica **19** (1/2): 45-51, Belgrade.
- RANĐELOVIĆ, N. & M. RUŽIĆ (1986): Dolomite pasture vegetation of the south-east Serbia. - Ekologija **21** (2): 75-91, Beograd (in Serbian, English summary).
- RANĐELOVIĆ, N. & M. RUŽIĆ (1983): Pastural vegetation on serpentine in south-eastern Serbia (Festuco-Plantaginietum association on serpentine). - Bulletin du Muséum d' Histoire Naturelle series B **38**: 55-61, Belgrade.
- RALEV, A., POPOVIĆ, M., RUŽIĆ, M., SHURULINKOV, P., DASKALOVA, G., SPASOV, L. & J. CRNOBRNJA-ISAILOVIĆ (2013): A new record of *Testudo graeca iberica* PALLAS, 1814, in southern Serbia. - Herpetozoa **25** (3/4): 151-153, Vienna.
- RISTIĆ, N. & TOMOVIĆ, Lj., AJTIĆ, R. & J. CRNOBRNJA-ISAILOVIĆ (2006): First record of the four-lined snake *Elaphe quatuorlineata* (LACÉPÈDE, 1789) in Serbia. - Acta Herpetologica **1** (2): 135-139, Firenze.
- RONKAY, L., J. L. YELA & M. HREBLAY (2001): Hadeninae II. Noctuidae Europeae **5**. - Soro.
- STOJANOVIĆ, D. & S. ČURČIĆ (2011): The Diversity of Noctuid Moths (Lepidoptera: Noctuidae) in Serbia. - Acta zoologica bulgarica **63** (1): 47-60, Sofia.
- STOJANOVIĆ, D., ČURČIĆ, S. & M. BRAJKOVIĆ (2010): The Geometrid moths (Lepidoptera, Geometridae) of Mt. Fruška Gora (Northern Serbia). - Institute of Zoology, University Faculty of Biology - Fruška Gora National Park - Department of Biology, Faculty of Science, University of Montenegro, Belgrade - Novi Sad - Podgorica.
- STOJANOVIĆ, D., ČURČIĆ, S. & S. NESTOROVIĆ (2011): Fauna Lepidoptera Nacionalnog parka "Djerdap", deo prvi - Noctuidae. - Institut za nizijsko šumarstvo i životinu sredinu, Novi Sad.
- STOJANOVIĆ, D., ČURČIĆ, S., ČURČIĆ, B. & S. MAKAROV (2013): The application of IUCN Red List criteria to assess the conservation status of moths at the regional level: a case of provisional Red List of Noctuidae (Lepidoptera) in Serbia. - Journal of Insect Conservation **17** (3): 451-464, Berlin.

- STOJANOVIĆ, D., ĆURČIĆ, S., STANISAVLJEVIĆ, L. & S. ORLOVIĆ (2014): New and rare moth species (Insecta: Lepidoptera) from Serbia. - *North-Western Journal of Zoology* **10** (2): 318-324, Oradea, Romania.
- VASIĆ, K. (2002): Fauna of Noctuids (Lepidoptera, Noctuidae) in Serbia. - *Proceedings on the Fauna of Serbia* **6**: 165-293, Serbian Academy of Sciences and Art, Department of Chemical and Biological Science, Belgrade.
- VASIĆ, K., TOMIĆ, D., CARNELUTTI, J., ZEČEVIĆ, M. & R. KRANJČEV (1990): Heterocera I. Bombyces et Sphinges (Insecta, Lepidoptera). In NONVEILLER, G. (Ed.): *Fauna Durmitora*. - *Sveska* **3**: 99-157, CANU i JED, Titograd (in Serbian, English summary).
- ZEČEVIĆ, M. (1980): Fauna leptira Timočke krajine sa posebnim osvrtom na lokalitete u Djerdapu od D. Milanovca do Radujevca. - *Razvitak* **4-5**: 44-49, Zaječar.
- ZEČEVIĆ, M. (2002): Fauna Leptira Timocke Krajine (Istočna Srbija). - DSIP „BAKAR“ BOR, Narodni Muzej Zaječar, Zaječar.
- ZEČEVIĆ, M. & S. RADOVANOVIĆ (1974): Leptiri Timočke Krajine. Zavod za poljoprivredu, Zaječar i Novinska ustanova “Timok“, Zaječar.
- ZLATKOVIĆ, B. (2011): Flora i fitogeografska pripadnost doline reke Pčinje u jugoistočnoj Srbiji. PhD Thesis (Manuscript). University in Belgrade, Faculty of Biology, Belgrade (in Serbian, English summary).
- ZLATKOVIĆ, B., RANDELOVIĆ, N., LAKUŠIĆ, D. & V. STEVANOVIĆ (2011): Novelties for the vascular flora of Serbia. - *Botanica serbica* **35** (5): 103-110, Belgrade.

#### Addresses of the authors

Dr. STOYAN BESHKOV  
National Museum of Natural History  
Tsar Osloboditel Blvd 1  
1000 Sofia, Bulgaria.  
e-mail: stoyan.beshkov@gmail.com

ANA NAHIRNIĆ  
National Museum of Natural History  
Tsar Osloboditel Blvd 1  
1000 Sofia, Bulgaria.  
e-mail: ananahirnic@nmnhs.com



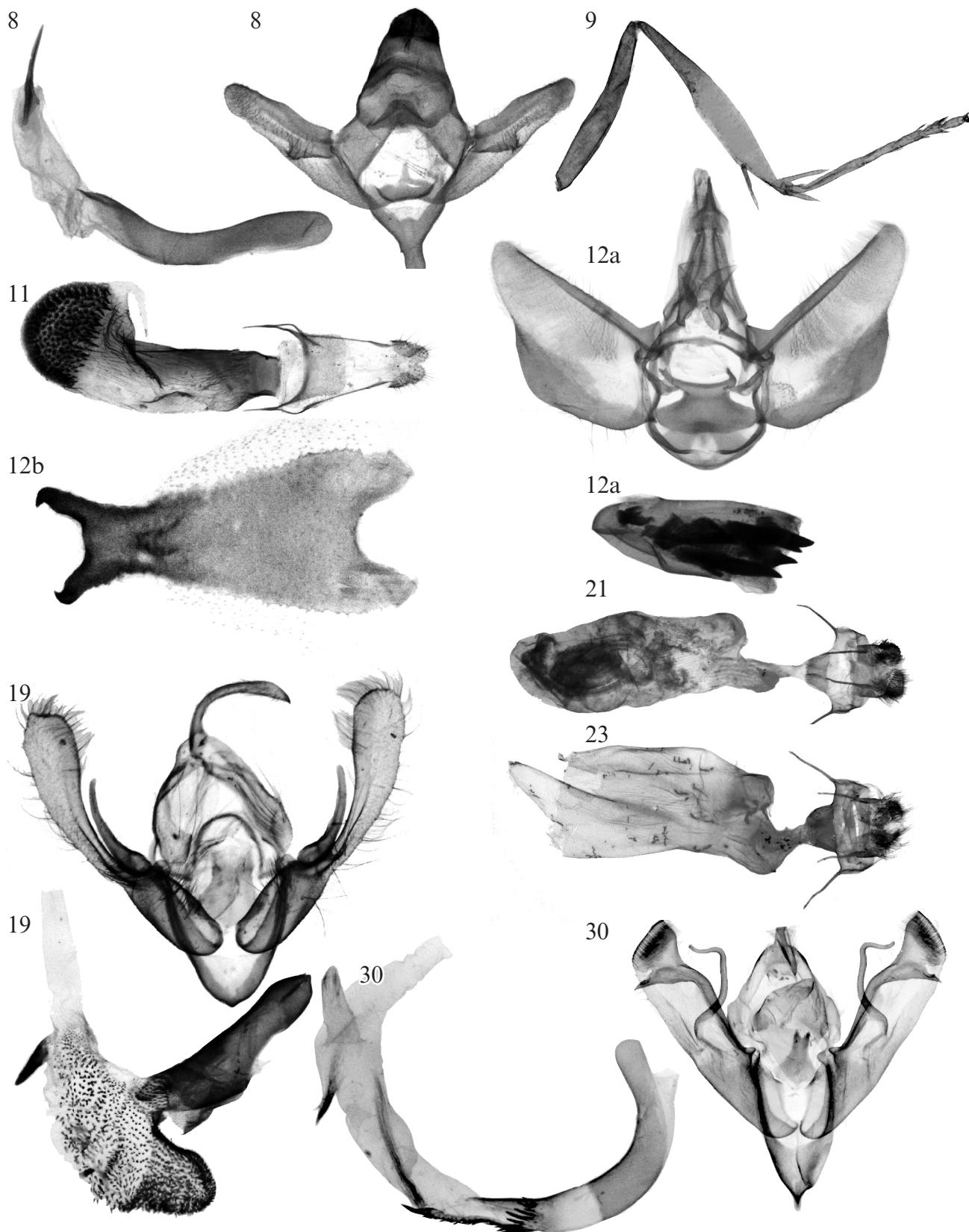


Fig. 8: *Eumannia oppositaria* (MANN, 1864), Trnava, 27.VIII.2015, ♂ genitalia with everted vesica, Gen. prep. 1./05.II.2016, S. BESHKOV.

Fig. 9: *Eumannia oppositaria* (MANN, 1864), Starac, 26.VIII.2015, ♂ hind leg, Prep. 2./03.II.2016, S. BESHKOV.

Fig. 11: *Eupithecia ericeata* (RAMBUR, 1833), Starac, 11.XI.2015, ♀ genitalia, Gen. prep. 5./14.IV.2015, S. BESHKOV.

Fig. 12: *Eupithecia quercetica* Prout, 1938, ♂, Trnava, 25.IV.2015, Gen. prep. 1./03.II.2016, S. BESHKOV. a. - ♂ genitalia; b. - 8<sup>th</sup> sternit.

Fig. 19: *Bryophila rectilinea* (WARREN, 1909), Trnava, 27.VIII.2015, ♂ genitalia with everted vesica, Gen. prep. 2./11.IV.2016, S. BESHKOV.

Fig. 21: *Bryophila rectilinea* (WARREN, 1909), Trnava, 27.VIII.2015, ♀ genitalia, Gen. prep. 1./11.IV.2016, S. BESHKOV.

Fig. 23: *Bryophila tephrocharis* BOURSIN, 1953, Starac, 26.VIII.2015, ♀ genitalia, Gen. prep. 1./08.IV.2016, S. BESHKOV.

Fig. 30: *Agrochola thurneri* BOURSIN, 1953, Starac, 11.XI.2015, ♂ genitalia with everted vesica, Gen. prep. 3./06.II.2016, S. BESHKOV.

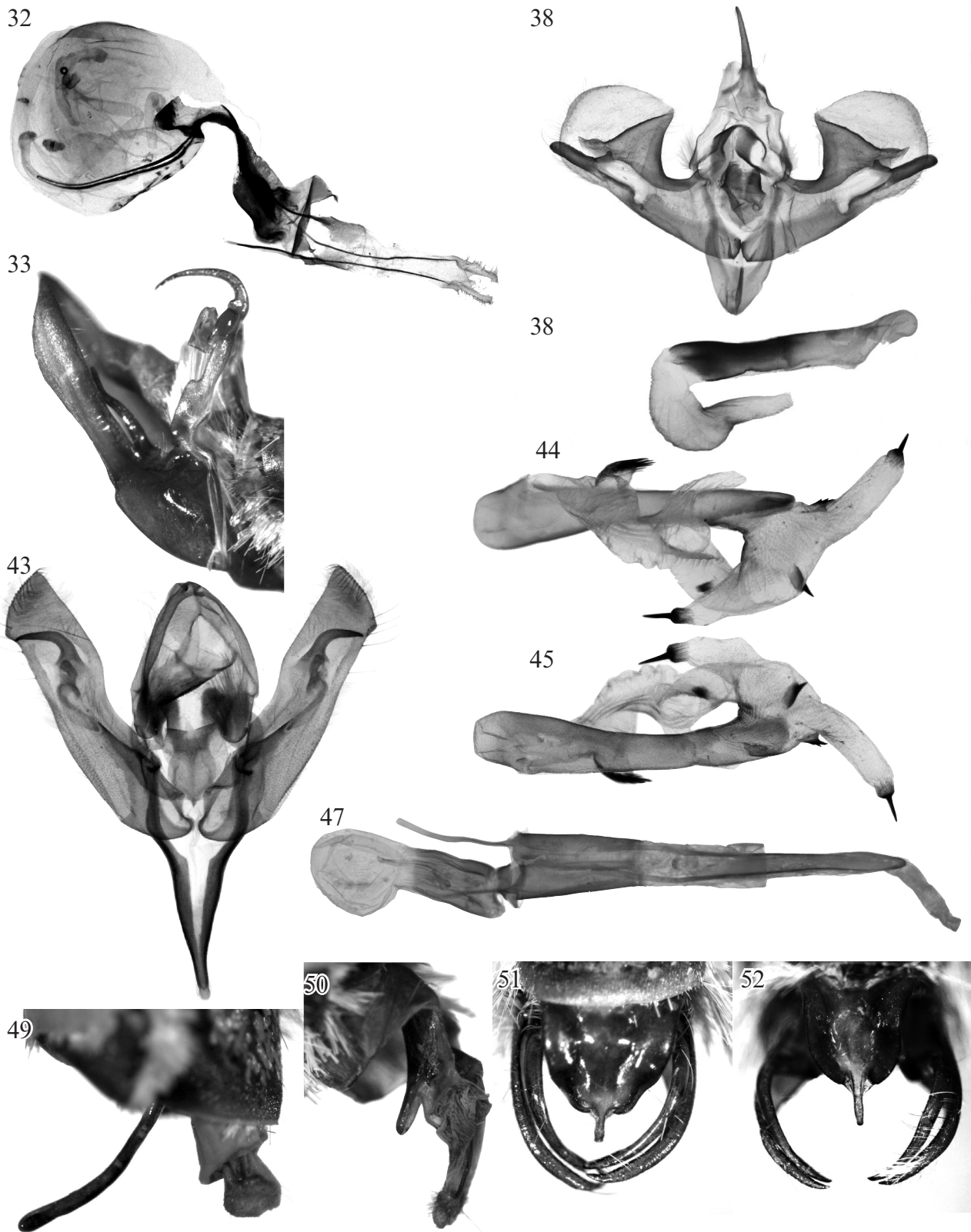


Fig. 32: *Agrochola kindermannii* (FISCHER V. RÖSLERSTAMM, 1837), Vražji Kamen, 12.XI.2015, Gen. prep. 1./06.II.2016, S. BESHKOV, ♀ genitalia.

Fig. 33: *Agrochola gratiosa* (STAUDINGER, 1882), Starac, 19.IX.2015, brushed ♂ genitalia.

Fig. 38: *Gripesia wegneri* KOBES & FIBIGER, 2003, Trnava, 13.X.2015, Gen. prep. 3./03.II.2016, S. BESHKOV, ♂ genitalia with everted vesica.

Fig. 43-45: *Egira anatolica* (HERING, 1933), Trnava, 25.IV.2015, Gen. prep. 1./18.II.2015, S. BESHKOV, ♂ genitalia with everted vesica.

Fig. 47: *Hadena wehrlii frequens* HACKER, 1996, Mt. Starac main road to Prohor Pčinjski Monastery, 2.VII.2015, Gen. prep. 1./02.II.2015, S. BESHKOV, ♀ genitalia.

Fig. 49: *Noctua fimbriata* (SCHREBER, 1759), Bulgaria, Bessaparski Vazvisheniya Hills, near Byaga Village, D. KAYNAKOV leg., brushed external ♀ genitalia.

Fig. 50: *Noctua tirrenica* BIEBINGER, SPEIDEL & HANIGK, 1983, Vražji Kamen, 21.IX.2015, brushed external ♀ genitalia.

Fig. 51: *Noctua tirrenica* BIEBINGER, SPEIDEL & HANIGK, 1983, Trnava, 18.IX.2015, ♂ external genitalia, uncus and valva tip.

Fig. 52: *Noctua fimbriata* (SCHREBER, 1759), Bulgaria, S Pirin Mt, below Sharaliya top, 1207 m, 8.VI.2014, S. BESHKOV leg., ♂ external genitalia, uncus and valva tip.





Fig. 1: Collecting locality above Trnava, Preševo district, 19.IX.2015.

Fig. 2: Collecting locality "Turski Grob" in Mt. Starac, 12.IX.2015.

Fig. 3: Collecting locality "Vražji Kamen" near Trgovište Village, 13.XI.2015.

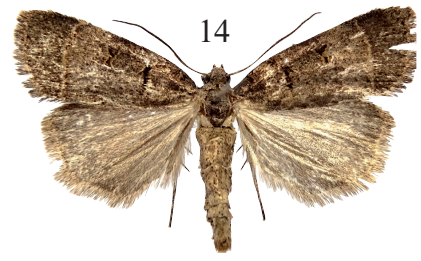
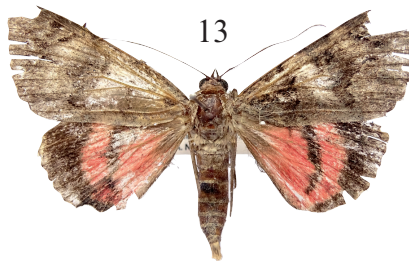


Fig. 4: *Cilix asiatica* O. BANG-HAAS, 1907, ♂, Trnava, 27.VIII.2015. Fig. 5: *Cilix asiatica* O. BANG-HAAS, 1907, ♀, Trnava, 27.VIII.2015. Fig. 6: *Cilix glaucata* (SCOPOLI, 1763), ♂, N. Greece, E. Rhodopi, Avdela village between Kiprinos and Mataxasis, 167 m, N41°25'47"; E026°12'03", 1.V.2014, S. BESHKOV & S. ABADJIEV leg. Fig. 7: *Eumannia oppositaria* (MANN, 1864), ♂, Trnava, 27.VIII.2015. Fig. 10: *Alelucis distinctaria* (HERRICH-SCHÄFFER, 1839), ♂, Trnava, 25.IV.2015. Fig. 13: *Catocala conijuncta* (ESPER, 1787), ♂, Trnava, 18.IX.2015. Fig. 14: *Praestilbia armeniaca* STAUDINGER, 1892, ♀, Starac, 19.IX.2015. Fig. 15: *Praestilbia armeniaca* STAUDINGER, 1892, ♂, Vražji Kamen, 21.IX.2015. Fig. 16: *Asteroscopus syriaca decipulae* (KOVACS, 1966), Starac, 11.XI.2015. Fig. 17: *Bryophila seladonia burgeffi* (DRAUDT, 1931), ♀, Trnava, 27.VIII.2015.



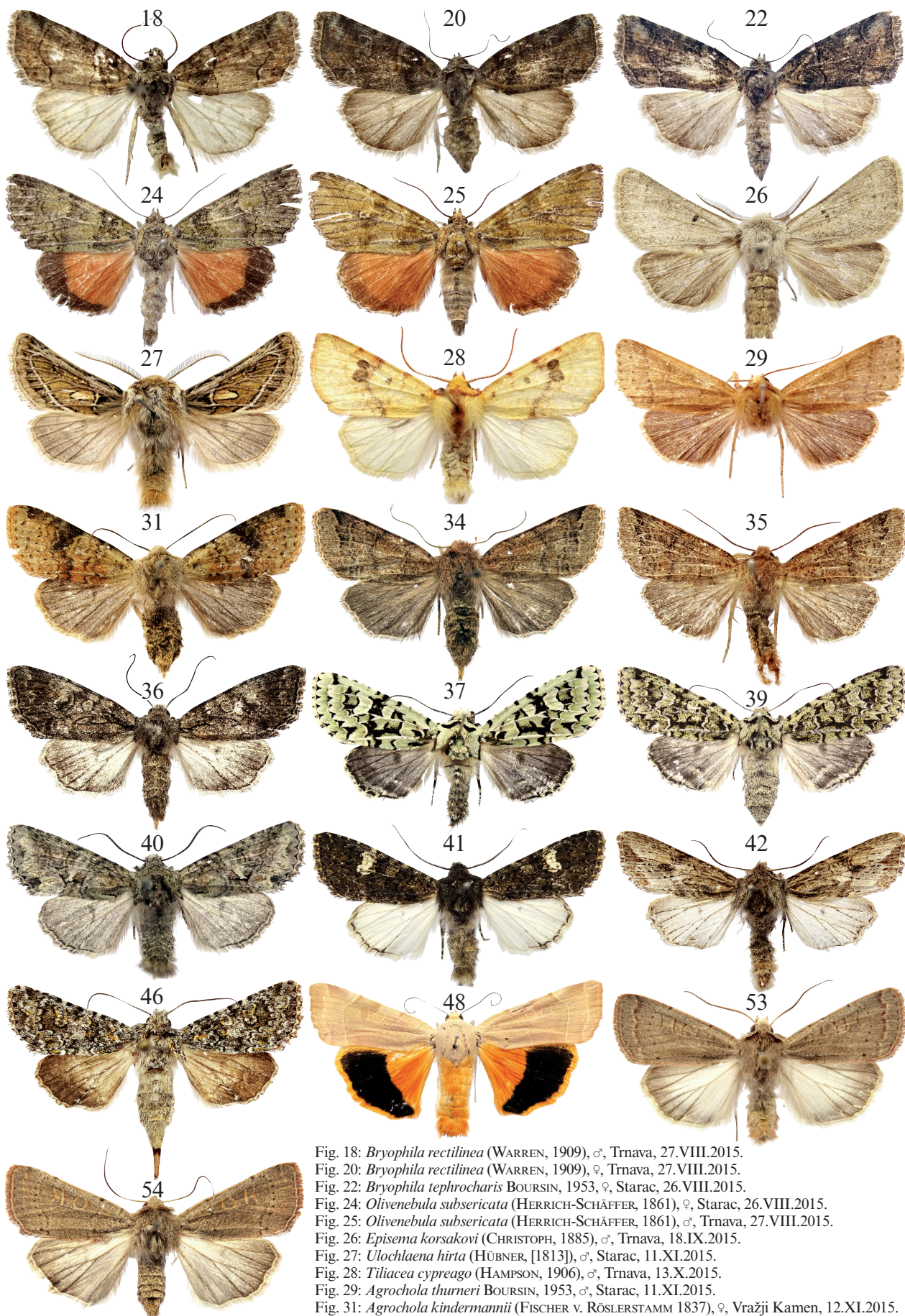


Fig. 18: *Bryophila rectilinea* (WARREN, 1909), ♂, Trnava, 27.VIII.2015.  
 Fig. 20: *Bryophila rectilinea* (WARREN, 1909), ♀, Trnava, 27.VIII.2015.  
 Fig. 22: *Bryophila tephrocharis* BOURSIN, 1953, ♀, Starac, 26.VIII.2015.  
 Fig. 24: *Olivenebula subsericata* (HERRICH-SCHÄFFER, 1861), ♀, Starac, 26.VIII.2015.  
 Fig. 25: *Olivenebula subsericata* (HERRICH-SCHÄFFER, 1861), ♂, Trnava, 27.VIII.2015.  
 Fig. 26: *Episema korsakovi* (CHRISTOPH, 1885), ♂, Trnava, 18.IX.2015.  
 Fig. 27: *Ulochlaena hirta* (HÜBNER, [1813]), ♂, Starac, 11.XI.2015.  
 Fig. 28: *Tiliacea cypreago* (HAMPSON, 1906), ♂, Trnava, 13.X.2015.  
 Fig. 29: *Agrochola thurneri* BOURSIN, 1953, ♂, Starac, 11.XI.2015.  
 Fig. 31: *Agrochola kindermanni* (FISCHER v. RÖSLERSTAMM 1837), ♀, Vražji Kamen, 12.XI.2015.  
 Fig. 34: *Agrochola gratiosa* (STAUDINGER, 1882), ♀, Starac, 19.IX.2015.

Fig. 35: *Agrochola gratiosa* (STAUDINGER, 1882), ♂, Vražji Kamen, 21.IX.2015. Fig. 36: *Evisa schawerdai* REISSER, 1930, ♀, Starac, 19.IX.2015. Fig. 37: *Griposia wegneri* KOBES & FIBIGER, 2003, ♂, Trnava, 13.X.2015. Fig. 39: *Griposia wegneri* KOBES & FIBIGER, 2003, ♀, Starac, 11.XI.2015. Fig. 40: *Dryobotodes carbonis* (WAGNER, 1931), ♂, Trnava, 13.X.2015. Fig. 41: *Polymixis serpentina* (TREITSCHKE, 1825), ♂, Vražji Kamen, 21.IX.2015. Fig. 42: *Egira anatolica* (HERING, 1933), ♂, Mt. Starac, 24.IV.2015. Fig. 46: *Hadena wehrlii frequens* HACKER, 1996, ♀, Mt. Starac main road to Prohor Pčinjski Monastery, 2.VII.2015. Fig. 48: *Noctua tirrenica* BIEBINGER, SPEIDEL & HANIGK, 1983, ♀, Vražji Kamen, 21.IX.2015. Fig. 53: *Xestia cohaesa* (HERRICH-SCHÄFFER, [1849]), ♂, Starac, 26.VIII.2015. Fig. 54: *Xestia cohaesa* (HERRICH-SCHÄFFER, [1849]), ♀, Starac, 19.IX.2015.